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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/088,363 | 03/08/2002 | David Coates | MERCK 2389 | 4623 |
| 23599 | 7590 | 05/18/2005 | EXAMINER | |
| MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201 | | | CALEY, MICHAEL H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,363

Applicant(s)

COATES ET AL.

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/17/04 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-19, 22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al. (U.S. Patent No. 5,619,352 "Koch") in view of Clerc et al. (U.S. Patent No. 4,701,028 "Clerc") and Verrall et al. (WO 98/12584 "Verrall").

Regarding claim 15, Koch discloses an optical compensator for a liquid crystal display having:

at least one O plate retarder; and

at least one film having the properties of a negative C plate (Column 7 lines 33-41; Table 1, Column 12 line 60 – Column 13 line 4).

Koch fails to disclose the film having the properties of a negative C plate as a diacetyl cellulose film. Koch, however, provides guidance for the construction of such a negative C-plate in Column 7 lines 33-41, "Negatively birefringent C-plates may be fabricated by the use of uniaxially compressed polymers (See, e.g., Clerc, U.S. Pat. No. 4,701,028)...". Clerc teaches such films as constructed from diacetyl cellulose (Column 6 lines 44-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the negative c-plate film disclosed by Koch from a diacetyl cellulose film as taught by Clerc. Koch provides direct guidance for construction of such a layer in reference to Clerc. Thus, one of ordinary skill would have been motivated to use the teachings of Koch and Clerc to construct the negative c-plate from a diacetyl cellulose film as proposed to benefit from the expected results of such a construction. For example, such a construction material would have been advantageous to realize the benefits as disclosed by Koch such as reduced leakage of the dark state (Column 5 lines 48-62) by using a preferred construction disclosed by Koch in reference to Clerc.

Koch also fails to explicitly disclose the O plate retarder structure as proposed. Koch teaches crosslinked polymerized liquid crystalline material with a tilted or splayed structure (Column 11 lines 9-31, Column 13 lines 8-20, Column 14 lines 48-57, Column 15 lines 56-67, Column 17 lines 12-28). Additionally, Verrall teaches a polymerized liquid crystalline material for an O plate as prepared from a polymerizable mesogenic compound having one polymerizable functional group and at least one other polymerizable mesogenic compound having two or more

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polymerizable functional groups in which the polymerizable mesogenic compound and the other mesogenic compound have rod-shaped mesogenic groups (Page 3 line 15 – Page 4 line 24, Page 5 lines 29-34, Page 24 lines 11-18, Page 24 line 29 – Page 25 line 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the O plate disclosed by Koch according to the proposed structure. Verrall teaches such a structure of the polymerizable mesogenic compound having one polymerizable functional group and at least one other polymerizable mesogenic compound having multiple polymerizable functional groups as a means of imparting high mechanical and thermal stability and low temperature dependence to the retarder film (Page 24 lines 11-18). Additionally, Koch teaches the O plate retarder as constructed from such a class of materials (Column 17 lines 11-35). One would have been motivated to construct the O plate retarder to have the structure taught by Verrall to benefit from a retarder exhibiting minimal difference in optical properties as a function of temperature and that is self-supporting.

Regarding claim 16, Koch discloses the average tilt angle of the O plate retarder as from 2 to 88 degrees (Column 12 lines 42-54).

Regarding claim 17, Koch discloses the tilt angle in the O-plate retarder as varying monotonously in a direction perpendicular to the plane of the film from a minimum value at one surface of the film to a maximum value at the opposite surface of the film (Column 10 line 67 – Column 11 line 8).

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Regarding claim 18, Koch discloses the minimum value as from 0 to 80 degrees (Column 12 lines 45-49).

Regarding claim 19, Koch discloses the maximum tilt angle in the retarder as from 10 to 90 degrees (Column 12 lines 45-49).

Regarding claim 22, Koch fails to explicitly disclose the thickness of the C plate. Clerc, however, teaches an example thickness of a C plate as 200 microns (Column 6 lines 3-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the C plate retarder such that the thickness would be between 20 and 200 microns. As taught by Clerc, a thickness within the proposed range falls within conventional useful ranges for C plates having an analogous function. One would have been motivated to construct a C plate having a thickness within the proposed range in order to achieve a particular viewing angle characteristic having an expected result as taught by Koch and Clerc.

Regarding claim 24, Koch further discloses:

a liquid crystal cell formed by two transparent substrates (Figure 11 elements 340 and 345) having surfaces which oppose each other, an electrode layer (Figure 11 elements 325 and 330) provided on the inside of at least one of said two transparent substrates and optionally superposed with an alignment layer (Column 5 lines 26-37), and a liquid crystal medium which is present between the two transparent substrates (Figure 11 element 1110; Column 12 lines 3-5),

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a polarizer arranged outside the transparent substrates, or a pair of polarizers sandwiching the substrates (Figure 11 elements 1105 and 1115), and at least one optical compensator, comprising:

- at least one O plate retarder,
- at least one film having the optical properties of a negative C plate (Column 7 lines 33-41) being situated between the liquid crystal cell and an least one of the polarizers, it being possible for the above elements to be separated, stacked, mounted on top of each other, coated on top of each other or connected by means of adhesive layers (Figure 11 element 1100; Column 12 lines 60-61, Column 9 Table 1).

Regarding claim 25, Koch discloses the device as a TN liquid crystal display (Column 12 lines 3-5).

Claims 20, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch in view of Clerc and Verrall and in further view of Winker et al. (U.S. Patent No. 5,557,434 "Winker").

Regarding claim 20, Koch as modified by Clerc fails to explicitly disclose the thickness of the O plate. Winker, however, teaches example useful ranges of the thickness of an O plate as between 0.4 microns and 1.5 microns (Column 6 lines 3-6)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the O plate retarder such that the thickness would be between 0.1

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and 10 microns. As taught by Winker, a thickness within the proposed range falls within conventional useful ranges for O plates having an analogous function. One would have been motivated to construct an O plate having a thickness within the proposed range in order to achieve a particular viewing angle characteristic having an expected result as taught by Koch and Winker.

Regarding claim 21, Koch as modified by Clerc fails to explicitly disclose the optical retardation of the O plate. Winker, however, teaches example useful ranges of the retardation of an O plate as between 260 nm and 360 nm (Column 7 lines 34-37) or as between 120 nm and 170 nm (lines 42-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the O plate retarder such that the retardation would be between 6 nm and 300 nm. As taught by Winker, retardation levels within the proposed range fall within conventional useful ranges for O plates having an analogous function. One would have been motivated to construct an O plate having a retardation within the proposed range in order to achieve a particular viewing angle characteristic having an expected result as taught by Koch and Winker.

Regarding claim 23, Koch as modified by Clerc fails to explicitly disclose the optical retardation of the C plate. Winker, however, teaches example useful ranges of the retardation of a C plate as between 70 nm and 300 nm (Column 5 lines 34-36) or as between 30 nm and 100 nm (line 39).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the C plate retarder such that the retardation would be between 2 nm and 100 nm. As taught by Winker, retardation levels within the proposed range fall within conventional useful ranges for C plates having an analogous function. One would have been motivated to construct an C plate having a retardation within the proposed range in order to achieve a particular viewing angle characteristic having an expected result as taught by Koch and Winker.

Response to Arguments

Applicant's arguments filed 12/17/04 with respect to claims 15-25 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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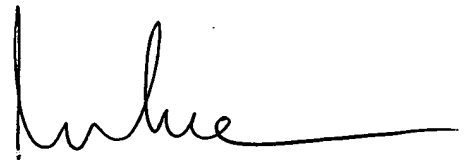
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Michael H. Caley

May 11, 2005



mhc



DUNG T. NGUYEN
PRIMARY EXAMINER